

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 2005 FB 101 E	FOR FURTHER ACTION		see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/EP2005/001058	International filing date (day/month/year) 03/02/2005	(Earliest) Priority Date (day/month/year) 27/02/2004	
Applicant TONCELLI, Luca			

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box II).

3. ☐ **Unity of invention is lacking** (see Box III).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. the figure of the **drawings** to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/EP2005/001058

Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

In a method for manufacturing sheets of agglomerate material comprising in succession a first step involving preparation of a mix by mixing a granulate with an organic binder (20), a second step involving distribution of the mix inside a tray mould (30), a third step involving vacuum vibro-compaction in order to obtain a compacted sheet (40), and a final step involving hardening of the organic binder (60), an intermediate step involving dielectric preheating of the compacted sheet (50) being introduced between the third vacuum vibro-compaction step and the final hardening step.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2005/001058

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B29C67/24 B28B11/24 H05B6/64

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B29C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 3 953 703 A (HURWITT ET AL) 27 April 1976 (1976-04-27) column 2, line 20 - line 52 -----	1,6
Y	EP 0 786 325 A (TONCELLI, MARCELLO) 30 July 1997 (1997-07-30) claims 1,11; figure 1 -----	1,6
Y	ETMANSKI B ET AL: "HOCHGEFUELLTE DUROPLASTE (TEIL 1). \HAERTUNG VON EPOXIDHARZBETON MIT MIKROWELLEN" PLASTVERARBEITER, ZECHNER UND HUETHIG VERLAG GMBH. SPEYER/RHEIN, DE, vol. 43, no. 7, 1 July 1992 (1992-07-01), pages 64-66, XP000293307 ISSN: 0032-1338 the whole document ----- -/--	1,6



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

° Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

11 May 2005

Date of mailing of the international search report

23/05/2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Orij, J

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2005/001058

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR 2 179 314 A (CTRE ETU RECHER IND BETO,FR) 16 November 1973 (1973-11-16) page 3, line 23 - line 39; figures 2,3 -----	1,6

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2005/001058

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 3953703	A	27-04-1976	NONE	
EP 0786325	A	30-07-1997	IT TV960007 A1	29-07-1997
			CA 2196119 A1	30-07-1997
			DE 69709193 D1	31-01-2002
			DE 69709193 T2	18-07-2002
			EP 0786325 A1	30-07-1997
			ES 2166947 T3	01-05-2002
			IL 120087 A	20-05-2001
			TR 9700056 A1	21-08-1997
			US 5928585 A	27-07-1999
FR 2179314	A	16-11-1973	FR 2179314 A5	16-11-1973

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/EP2005/001058

International filing date (day/month/year)
03.02.2005

Priority date (day/month/year)
27.02.2004

International Patent Classification (IPC) or both national classification and IPC
B29C67/24, B28B11/24, H05B6/64

Applicant
TONCELLI, Luca

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office - P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk - Pays Bas
Tel. +31 70 340 - 2040 Tx: 31 651 epo nl
Fax: +31 70 340 - 3016

Authorized Officer

Orij, J

Telephone No. +31 70 340-4563



**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/EP2005/001058

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/EP2005/001058

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-8
	No: Claims	
Inventive step (IS)	Yes: Claims	2-5,7,8
	No: Claims	1,6
Industrial applicability (IA)	Yes: Claims	1-8
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/EP2005/001058

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following documents:
D1: EP-A-0 786 325 (TONCELLI, MARCELLO) 30 July 1997 (1997-07-30)
D2: US-A-3 953 703 (HURWITT ET AL) 27 April 1976 (1976-04-27)
D3: ETMANSKI B ET AL: "HOCHGEFUELLTE DUROPLASTE (TEIL 1).
HAERTUNG VON EPOXIDHARZBETON MIT MIKROWELLEN"
PLASTVERARBEITER, ZECHNER UND HUETHIG VERLAG GMBH.
SPEYER/RHEIN, DE, vol. 43, no. 7, 1 July 1992 (1992-07-01), pages 64-66,
XP000293307 ISSN: 0032-1338
- 2.1 The document D1 discloses (the references in parentheses applying to this document) a method for manufacturing sheets of agglomerate material comprising, in succession:
 - a first step involving preparation of a mix by mixing together stone materials of predetermined particle size with a binder consisting of organic resins,
 - a second step involving distribution of said mix inside a tray mould so as to form a layer of mix,
 - a third step involving vacuum vibro-compaction in order to obtain a compacted sheet, and
 - a final step involving hardening or catalysis of the binder by means of heating ovens in order to obtain the finished products.

The subject-matter of claim 1 therefore differs from D1 in that an intermediate step involving dielectric preheating of the compacted sheet is introduced between said third vacuum vibro-compaction step and said final hardening step.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

The objective problem underlying claim 1 appears to be how to reduce the time required for the hardening step (cf. description page 1, line 23 - page 2, line 32).

Dielectric pre-heating of a cast layer of ceramic slip is described in document D2 and addresses and solves the objective underlying problem (column 2, lines 23-52, claims 1-3). Document D3 generally teaches the replacement of oven heating

by microwave heating for a mix of stone materials with a binder consisting of organic resins and leads the skilled person to combine the teachings of D1 and D2, so that the skilled person would regard it as an obvious option to include the teaching of D2 in the method known from D1 in order to solve the problem posed.

Hence the solution proposed in claim 1 of the present application is deprived of an inventive step (Article 33(3) PCT).

2.2 The document D1 discloses also (the references in parentheses applying to this document) a plant for manufacturing sheets of agglomerate material using the method according to any one of the preceding claims and comprising, in succession,

- a first station for preparing a mix by mixing a granulate of predetermined particle size with a binder consisting of organic resins,
- a second station for distributing said mix inside a tray mould so as to form a layer of mix,
- a third vacuum vibro-compaction station for obtaining a compacted sheet, and a final hardening station comprising at least one heating oven for catalysis of the organic binder so as to obtain the final sheet (column 1, lines 18-33, figure 1)

The subject-matter of claim 6 therefore differs from D1 in that an intermediate station for dielectric preheating of said compacted sheet is arranged between said third vibro-compaction station and said final hardening station.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

The objective problem underlying claim 6 appears to lie in the optimization of heating.

Regarding the teaching of D2 and the PCT Guidelines 13.14 (c) does claim 6 neither appear to involve an inventive step (Article 33(3) PCT).

- 3.2 The additional features of claims **2-5,7 and 8** are as such not described by the cited prior art documents. In case a common objective problem underlying is contained by the description which underlies one or more of these apparatus and method features, the requirements of Article 33(2)(3) and Rule 13.1 PCT could be met.
4. The subject-matter of claims **1-8** is considered as susceptible of industrial application (Article 33(4) PCT).

Re Item VII

Certain defects in the international application

1. Contrary to the requirements of Rule 5.1(a) PCT, the relevant background art disclosed in the documents D2 and D3 is not mentioned in the description, nor are these documents identified therein.
- _____
- _____

Re Item VIII

Certain observations on the international application

- ? 1. Claims **7 and 8** contain features defined as activities contrary to the category of these claims, cf. the PCT Guideline 5.12.
- ? 2. The imprecise statement in the description, page 5 last paragraph and page 6 first paragraph, implies that the subject-matter for which protection is sought may be different to that defined by the claims, thereby resulting in lack of clarity (Article 6 PCT; PCT Guideline 5.30) when used to interpret them. This statement should therefore be deleted from the description.